

In the Claims:

1-15. (Cancelled).

16. (Currently Amended) A system for autostereoscopic vision comprising:

(a) a first optical construction operable to present superimposed left and right image picture elements of left and right images, respectively, said first optical construction being designed so as to polarize superimposed light of said left image differently from superimposed light of said right image and further so as to differently polarize light of said left image being displayed in adjacent picture elements and differently polarize light of said right image being displayed in adjacent picture elements which comprises: ;

(i) a display for displaying a uniformly polarized combined image of left and right image picture elements of left and right images, wherein light intensity of each picture element of said combined image is a function of left-image light intensity at a corresponding position of a left image, and of right-image light intensity at a corresponding position of a right image; and

(ii) a birefringent layer having individually switchable elements being positioned in front of said display and serving for re-dividing said uniformly polarized combined image by controlled partial light rotation, thereby constructing an image having simultaneously superimposed left and right image picture elements of left and right images, respectively, in which superimposed light of said left image is polarized differently from superimposed light of said right image, light of said left image displayed in

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adjacent picture elements is polarized differently and light of said right image displayed in adjacent picture elements is polarized differently;

(b) a configurable second optical construction designed and constructed to be positioned between said first optical construction and a viewer and closer to said first optical construction than to said viewer;

(c) an eye-tracking sensor for providing information pertaining to positions of the left and the right eyes of the viewer; and

(d) a control element operable to receive said eye-position information from said eye-tracking sensor, to calculate appropriate configurations of said second optical construction based on said received eye-position information, and to issue successive configuration commands to said second optical construction, thereby commanding configurations of said second optical construction, which configurations enable a left eye of the viewer to continuously see left imagery data presented by said first optical construction and a right eye of the viewer to continuously see right imagery data presented by said first optical construction, and substantially prevent said left eye from seeing right imagery data and substantially prevent said right eye from seeing left imagery data, while the viewer changes position with respect to said first and second optical constructions.

17-24. (Canceled)

25. (Currently Amended) A system for providing autostereoscopic viewing to a viewer, comprising:

(a) a pixilated display for displaying a uniformly polarized combined image of left and right image picture elements of left and right images;

(b) a first birefringent layer having individually switchable elements being positioned in front of said display and serving for re-dividing said uniformly polarized combined image by controlled partial light rotation;

(c) a second birefringent layer having individually switchable elements, positioned between said viewer and said first birefringent layer~~first optical layer~~;

(d) a uniform polarizer positioned between said viewer and said second birefringent layer;

(e) an eye-tracking module; and

(f) a controller operable to control switchable elements of said first birefringent layer and of said second birefringent layer, based on information received from said eye-tracking module,  
the system being operable to provide autostereoscopic viewing to a moving viewer, each of said viewer's right and left eyes seeing, simultaneously, an appropriate image, at full pixel resolution of said display.

26. (Original) The system of claim 25, wherein said controlled partial light rotation is effected by controlled degree of light rotation.

27. (Original) The system of claim 25, wherein said controlled partial light rotation is effected by controlled time periods of light rotation.

28. (Original) The system of claim 25, wherein said controlled partial light rotation is effected by both controlled degree of light rotation and controlled time periods of light rotation.

29. (Cancelled)

30. (Original) The system of claim 25, further comprising a lens element for focusing light from said display onto said birefringent layer.

31. (Original) The system of claim 25, wherein said display includes a rear and remote light source producing homogenous light rays.

32. (Previously Presented) A system for autostereoscopic vision comprising:

(a) a first optical construction which comprises:

(i) a display for displaying a uniformly polarized combined image of left and right image picture elements of left and right images, wherein light intensity of each picture element of said combined image is a function of left-image light intensity at a corresponding position of a left image, and of right-image light intensity at a corresponding position of a right image; and

(ii) a birefringent layer having individually switchable elements being positioned in front of said display and serving for re-dividing said uniformly polarized combined image by controlled partial light rotation, thereby constructing an image having simultaneously superimposed left and right image picture elements of left and right images, respectively, in which superimposed light of said left image is polarized differently from superimposed light of said right image, light of said left image displayed in adjacent picture elements is polarized differently and light of said right image displayed in adjacent picture elements is polarized differently.

33. (Previously Presented) The system of claim 32, further comprising:

(b) a second optical construction designed and constructed to be positioned between said first optical construction and a viewer and closer to said first optical construction than to said viewer, said second optical construction when so positioned enabling a left eye of the viewer to see left imagery data presented by said first optical construction and a right eye of the viewer to see right imagery data presented by said first optical construction, while substantially preventing each of the right and left eyes of the viewer from seeing light from an inappropriate image.

34-35. (Canceled)

36. (Original) The system of claim 33, wherein said display includes a rear and remote light source producing homogenous light rays.

37-55. (Canceled)

56. (Previously Presented) The system of claim 33, wherein said second optical construction is configurable to present a plurality of polarizing strips, each strip having a polarization orientation orthogonal to that of strips to which it is adjacent.

57. (Previously Presented) The system of claim 33, wherein said second optical construction comprises a birefringent layer with individually switchable elements.

58. (Previously Presented) The system of claim 33, wherein said second optical construction comprises a birefringent layer with individually switchable elements and a uniform polarizer.

59. (Previously Presented) The system of claim 37, comprising:

- (a) a display for displaying a uniformly polarized combined image of left and right image picture elements of left and right images; and
- (b) a birefringent layer having individually switchable elements being positioned in front of said display and serving for re-dividing said uniformly polarized combined image by controlled partial light rotation, operable to construct an image having superimposed left and right image picture elements of left and right images, respectively, in which superimposed light of said left image is polarized differently from superimposed light of said right image.

60. (Previously Presented) The system of claim 59, operable to present an image wherein light of said left image displayed in adjacent picture elements is polarized differently and light of said right image displayed in adjacent picture elements is polarized differently.

61. (Previously Presented) The system of claim 60, further operable to present an image wherein light of said left image is polarized uniformly and light of said right image is polarized uniformly.

62. (Previously Presented) The system of claim 59, wherein said display is pixellated, and wherein said individually switchable elements of said birefringent

layer are each optically aligned with a respective pixel of said display, and wherein each of said individually switchable elements is controlled to vary the polarization of output light from a display pixel with which it is optically aligned.

63. (Previously Presented) The system of claim 32, wherein said display is pixellated, and wherein said individually switchable elements of said birefringent layer are each optically aligned with a respective pixel of said display device, and wherein each of said individually switchable elements is controlled to vary the polarization of output light from a display pixel with which it is optically aligned.

64. (Previously Presented) The system of claim 16, wherein said control element is further operable to communicate with said first optical construction.

65. (Previously Presented) The system of claim 64, wherein said control element is operable to command size and position of picture elements presented by said first optical construction.

66. (Previously Presented) The system of claim 65, wherein said first optical construction comprises a first pixilated liquid crystal panel and a second pixilated liquid crystal panel.

67. (Previously Presented) The system of claim 66, wherein said first optical construction further comprises a light source, a first uniformly polarizing layer positioned between said light source and said first liquid crystal panel, and a second

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uniformly polarizing layer positioned between said first liquid crystal panel and said second liquid crystal panel.

68. (Previously Presented) The system of claim 65, wherein said second optical construction comprises a uniform polarizer and a birefringent layer with individually switchable elements.

69. (New) The system of claim 25, wherein each individually switchable element of said first birefringent layer is optically aligned with one and only one pixel of said pixilated display.